

User's Manual



MTP DA4 and MTP DA8 Video, Audio, and/or Serial Link Mini Twisted Pair Distribution Amplifiers

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Precautions

Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

- Read Instructions** • Read and understand all safety and operating instructions before using the equipment.
- Retain Instructions** • The safety instructions should be kept for future reference.
- Follow Warnings** • Follow all warnings and instructions marked on the equipment or in the user information.
- Avoid Attachments** • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

- Lire les instructions** • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.
- Conservier les instructions** • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.
- Respecter les avertissements** • Observer tous les avertissements et consignes marqués sur le matériel ou présents dans la documentation utilisateur.
- Eviter les pièces de fixation** • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Sicherheitsanleitungen • Deutsch



Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

- Lesen der Anleitungen** • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.
- Aufbewahren der Anleitungen** • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.
- Befolgen der Warnhinweise** • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.
- Keine Zusatzgeräte** • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaucion

- Leer las instrucciones** • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.
- Conservar las instrucciones** • Conservar las instrucciones de seguridad para futura consulta.
- Obedecer las advertencias** • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.
- Evitar el uso de accesorios** • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

Warning

- Power sources** • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.
- Power disconnection** • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).
- Power cord protection** • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.
- Servicing** • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.
- Slots and openings** • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.
- Lithium battery** • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Avertissement

- Alimentations** • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.
- Déconnexion de l'alimentation** • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.
- Protection du cordon d'alimentation** • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas éraclés ou pincés par des objets.
- Réparation-maintenance** • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.
- Fentes et orifices** • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.
- Lithium Batterie** • Il a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Vorsicht

- Stromquellen** • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.
- Stromunterbrechung** • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.
- Schutz des Netzkabels** • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegen gestellt werden können.
- Wartung** • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.
- Schlitze und Öffnungen** • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.
- Litium-Batterie** • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Advertencia

- Alimentación eléctrica** • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearla ni eliminarla.
- Desconexión de alimentación eléctrica** • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.
- Protección del cable de alimentación** • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.
- Reparaciones/mantenimiento** • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario debe acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.
- Ranuras y aberturas** • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.
- Batería de litio** • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:

Extron USA
1001 East Ball Road
Anaheim, CA 92805
U.S.A.

Europe, Africa, and the Middle East:

Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

Asia:

Extron Asia
135 Joo Seng Road #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Japan:

Extron Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

China:

Extron China
686 Ronghua Road, Songjiang
District
Shanghai 201611
China

Middle East:

Extron Middle East
Dubai Airport Free Zone
F12, PO Box 293666
United Arab Emirates, Dubai

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

安全须知 • 中文



这个符号提示用户该设备用户手册中有重要的操作和维护说明。



这个符号警告用户该设备机壳内有暴露的危险电压，有触电危险。

注意

阅读说明书 • 用户使用该设备前必须阅读并理解所有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

警告

电源 • 该设备只能使用产品上标明的电源。设备必须使用有地线的供电系统供电。第三条线（地线）是安全设施，不能不用或跳过。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统的电源线。

电源线保护 • 妥善布线，避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用来防止机内敏感元件过热。不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。必须使用与厂家推荐的相同或相近型号的电池。按照生产厂的建议处理废弃电池。

FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The Class A limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Quick Start Guide

MTP DA4 and MTP DA8

Install and set up the MTP DA as follows:

Step 1

Turn all of the equipment off and disconnect it from the power source.

Step 2

If the DA is part of a system that includes an MTP T 15HD A or MTP 15HD RS transmitter, check, and if necessary, reconfigure the serial data/audio termination and mute jumpers inside the DA. See "Termination and Mute Jumpering — MTP 15HD Systems Only", on page 4.

Step 3

Connect a twisted pair (TP) cable from an MTP transmitter, MTP SW switcher, or VTT transmitter to the A/V Input RJ-45 connector. See the TP connector table at right to terminate the cable.

TIA/EIA 568 A TP connector	
Pin	Wire color
1	White-green
2	Green
3	White-orange
4	Blue
5	White-blue
6	Orange
7	White-brown
8	Brown

Step 4

Connect up to 4 or 8 TP cables between the DA's A/V Outputs connectors and an MTP or VTT receiver that is compatible with the transmitted signal. See the TP connector table at right to terminate the cable.

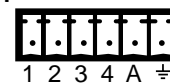
Step 5

If desired, connect a contact closure control to the Output Mute captive screw connector shown below. Each numbered pin is assigned to a DA output (pin A is assigned to all DA outputs). When you short and latch a pin or pins to ground, the DA mutes the associated twisted pair output(s).

**MTP DA8
Output Mute Connector**



**MTP DA4
Output Mute Connector**



Pin	CC	Function
1	Out #1	Mute output #1
2	Out #2	Mute output #2
3	Out #3	Mute output #3
4	Out #4	Mute output #4
5	Out #5	Mute output #5
6	Out #6	Mute output #6
7	Out #7	Mute output #7
8	Out #8	Mute output #8
A	Out All	Mute all
⏏	Gnd	Ground

Quick Start Guide — MTP DA4 and MTP DA8, cont'd

Step 6

Connect 12 VDC power. See the drawing at right.

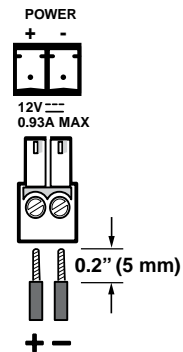


Table of Contents

Introduction.....	1
TP cable advantages	2
Transmission distance	2
MTP 15HD A and MTP 15HD RS transmission distances.....	3
MTP SV and MTP CV transmission distances	3
VTT001/VTR001 transmission distances.....	4
Termination and Mute Jumpering —MTP 15HD Systems Only.....	4
Mounting.....	6
Tabletop use	6
Rack shelf mounting	6
UL guidelines	6
Rack shelf mounting instructions.....	7
Furniture mounting	9
Connections.....	10
Power supply wiring.....	12
TP cable termination.....	13
Front Panel Power Indicator	15
Skew Delay Problems.....	15
Specifications	16
Part Numbers	18
MTP DA distribution amplifiers	18
Included parts.....	18
Accessories	19
Cables.....	19
Connectors.....	19

Introduction

The Extron MTP DA4 and MTP DA8 twisted pair (TP) distribution amplifiers (DAs) distribute a single TP input signal to four or eight MTP receivers. The TP input can be from any of the following MTP transmitter and switcher families:

- **MTP T SV** S-video transmitter (all models)
- **MTP T CV** composite video transmitter (all models)
- **MTP T 15HD A** RGB/high resolution video and audio transmitter (all models)
- **MTP T 15HD RS** RGB/high resolution video and serial link transmitter (all models)
- **SW MTP T 15HD A** video and audio switcher with built-in TP transmitter
- **VTT001** RGB/high resolution video transmitter

The MTP DAs are part of a system (figure 1) for long-distance distribution of VGA or other high resolution video and either audio or a serial link over TP cable. Extron's Enhanced Skew-Free™ A/V UTP cable is preferred, but Category (CAT) 5 shielded twisted pair (STP), unshielded twisted pair (UTP), and foil shielded twisted pair (FTP) cable are also acceptable.

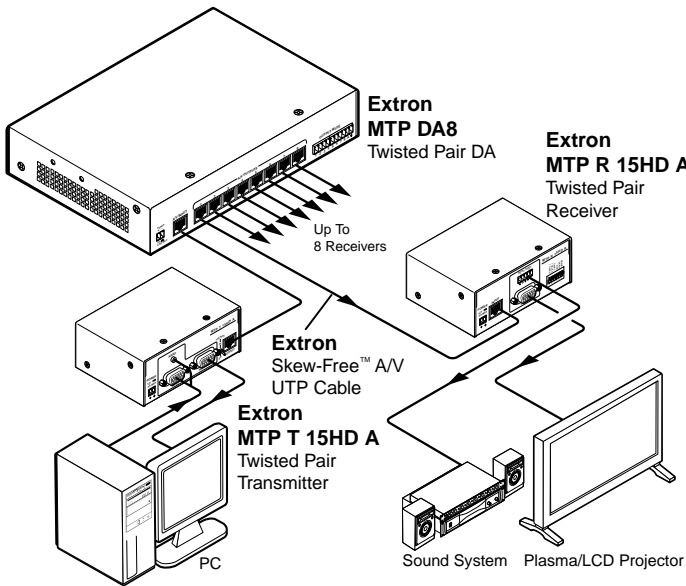


Figure 1 — Typical TP distribution system

68-975-01 Rev. C
02 09

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Introduction

The MTP DA inputs a proprietary signal on an RJ-45 connector, buffers it, and distributes four or eight identical proprietary signals on RJ-45 connectors.

NOTE The MTP DA does **not** support the remote power feature of the MTP SV, MTP CV, and VTT001. You will have to power the transmitter and all connected receivers.

A contact closure connector on the rear panel provides the ability to mute individual outputs or all outputs.

The MTPs ship with external desktop 12 V power supplies that accept 100 to 240 VAC, 50 Hz or 60 Hz input.

TP cable advantages

Twisted pair cable is smaller, lighter, more flexible, and less expensive than coaxial cable. Termination of the cable with RJ-45 connectors is simple, quick, and economical.

Transmission distance

The maximum distance for the entire transmission system is determined by the output frequency and resolution and the position of the transmitter's Pre-Peak switch (if equipped). The total recommended distances are not affected by the presence or absence of an MTP DA in the transmission system. The following sections specify the recommended transmission distances using Extron Enhanced Skew-Free A/V UTP cable or UTP CAT 5 cable, terminated with CAT 5 rated connectors

NOTE It is possible to exceed the recommended distance; however, image quality may be reduced.

NOTE The recommendations apply to a complete transmission system, which can include a single transmitter, one or more DAs, and one or more daisy-chained receivers. For example, the maximum suggested range for 1024 x 768 video is 300' with Pre-Peak off in an MTP 15HD system.

NOTE If you are using the DA as part of an MTP 15HD RS (serial data) transmission system, be aware that the DA routes the serial link one way only, from the transmitter to the receiver(s).

Also, the transmitter and receiver must be jumper configured to pass the serial link one way only. Refer to the MTP 15HD RS User's Manual.

The table below specifies the recommended transmission distances and transmitter Pre-Peak switch positions for MTP 15HD RGB transmission systems.

Recommended transmission ranges at 60 Hz, MTP 15HD A and MTP 15HD RS systems

Video format	Pre-Peak off	Pre-Peak on	Max. distance (high quality)	Max. distance (variable quality)
Composite, S-video, Component			800' (245 m)	1000' (300 m)
640 x 480	<300' (90 m)	>350' (105 m)	700' (215 m)	750' (240 m)
800 x 600	<300' (90 m)	>350' (105 m)	550' (165 m)	650' (200 m)
1024 x 768*	<300' (90 m)	>350' (105 m)	500' (150 m)	600' (185 m)
1280 x 960*	<300' (90 m)	>350' (105 m)	400' (120 m)	500' (150 m)
1280 x 1024*	<250' (75 m)	>300' (90 m)	350' (105 m)	450' (135 m)
1360 x 765	<250' (75 m)	>300' (90 m)	400' (120 m)	500' (150 m)
1365 x 768	<250' (75 m)	>300' (90 m)	400' (120 m)	450' (135 m)
1366 x 768	<250' (75 m)	>300' (90 m)	400' (120 m)	450' (135 m)
1400 x 1050	<250' (75 m)	>300' (90 m)	350' (105 m)	400' (120 m)
1440 x 900	<250' (75 m)	>300' (90 m)	350' (105 m)	400' (120 m)
1600 x 1200*	<250' (75 m)	>300' (90 m)	300' (90 m)	450' (135 m)
1920 x 1200	<250' (75 m)	>300' (90 m)	300' (90 m)	400' (120 m)
HDTV 720p	<250' (75 m)	>300' (90 m)	400' (120 m)	500' (150 m)
HDTV 1080i	<250' (75 m)	>300' (90 m)	300' (90 m)	400' (120 m)
HDTV 1080p	<250' (75 m)	>300' (90 m)	300' (90 m)	400' (120 m)

MTP SV and MTP CV transmission distances

Extron suggests a minimum transmission distance of at least 50' (15 m). The maximum transmission distance is 1000' (300 m).

VTT001/VTR001 transmission distances

The following table specifies the maximum recommended transmission distances for a VTT001/VTR001 system at 60 Hz.

Video format	Recommended Maximum range
640 x 480	500' (150 m)
800 x 600	400' (120 m)
1024 x 768	300' (90 m)
1280 x 1024	200' (60 m)
1600 x 1200	150' (45 m)

Termination and Mute Jumping —
MTP 15HD Systems Only

NOTE The position of jumpers J3 and J9 have no effect when the DA is installed as a part of an MTP CV series, MTP SV series, or VTT001/VTR001 system.

When an MTP T 15HD A or SW MTP T A provides the input, the MTP DA's output can include analog audio in addition to the RGB video. When an MTP T 15HD RS provides the input, the DA output can include a serial (R-232) link in addition to the RGB video.

A jumper block inside the MTP DA that set the DA to properly terminate the audio or serial portion of the input signal when the input signal was transmitted by an MTP 15HD A series (audio), SW MTP T (audio), or MTP 15HD RS series (serial) transmitter.

A second jumper block sets the DA to mute the audio or serial link when its video mute function is activated, or to always pass the audio or serial link regardless of the contact closure mute status.

By default, the MTP DA is configured with the internal jumpers set to terminate audio. For serial data applications, the DA can be configured to properly terminate that signal as follows:

1. If applicable, disconnect all cables, remove the DA from its installation location, and remove any mounting brackets installed.
2. Remove the two screws from either side of the DA and the two screws on the top (six screws total) and lift the top cover off of the DA (figure 2).
3. **Select audio or serial distribution** — Locate jumper J3 on the main board and shift the jumper from the audio (A) (rear) to the serial (S) (front) position (figure 2).

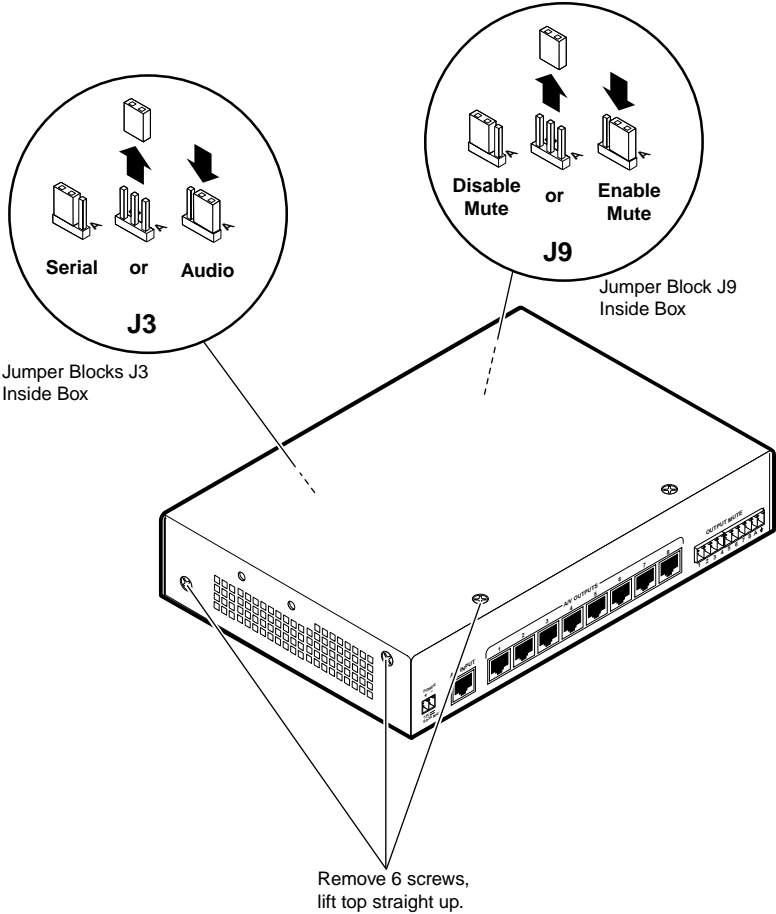


Figure 2 — Opening the DA and termination jumpering

4. **Enable or disable audio or serial distribution mute** — If desired, locate jumper J9 on the main board and shift the jumper from the disable mute (S) (front) to the enable mute (A) (rear) position (figure 2).

NOTE When J9 is set to the disable mute (S) (front) position, the video mute has no effect on the DA's audio or serial distribution.

When J9 is set to the enable mute (A) (rear) position, the DA mutes the audio or serial output when its contact closure video mute is activated.

5. Replace the top cover.
6. Reinstall the six screws removed in step 2. If any mounting brackets were removed in step 1, put them back into position as you reinstall the screws.
7. If applicable, reinstall the DA and reconnect all cables.

Mounting

CAUTION

Installation and service must be performed by authorized personnel only.

The 1U high, half rack width MTP DA can be set on a table, mounted on a rack shelf, mounted to a rack without a shelf, or mounted under a desk or tabletop.

Tabletop use

Four self-adhesive rubber feet are included with the DA. For tabletop use, attach one foot at each corner of the bottom side of the unit and place the unit in the desired location.

Rack shelf mounting

For optional rack mounting, mount the DA using any of the following rack mounting options:

- RSU 129 9.5" deep 1U universal rack shelf kit (part #60-190-01)
- RSB 129 9.5" deep 1U basic rack shelf (part #60-604-01)
- RSU 126 6" deep universal rack shelf kit (part #60-190-10)
- RSB 126 6" deep basic rack shelf (part #60-604-10)

UL guidelines

The following Underwriters Laboratories (UL) requirements pertain to the installation of the DA into or onto a rack.

1. **Elevated operating ambient** — If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consider installing the equipment in an environment compatible with the +122 °F (+50 °C) maximum ambient temperature (T_{ma}) specified by Extron.
2. **Reduced air flow** — Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
3. **Mechanical loading** — Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

4. **Circuit overloading** — Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
5. **Reliable earthing (grounding)** — Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (such as the use of power strips).

Rack shelf mounting instructions

1. Remove feet from the bottom of the DA if installed.
2. Mount the DA on the rack shelf, using two 4-40 x 3/16" screws in opposite (diagonal) corners to secure it to the shelf (figure 3 and figure 4).
3. Install blank panel(s) or other unit(s) on the rack shelf.
4. Attach the rack shelf to the rack using the supplied bolts.

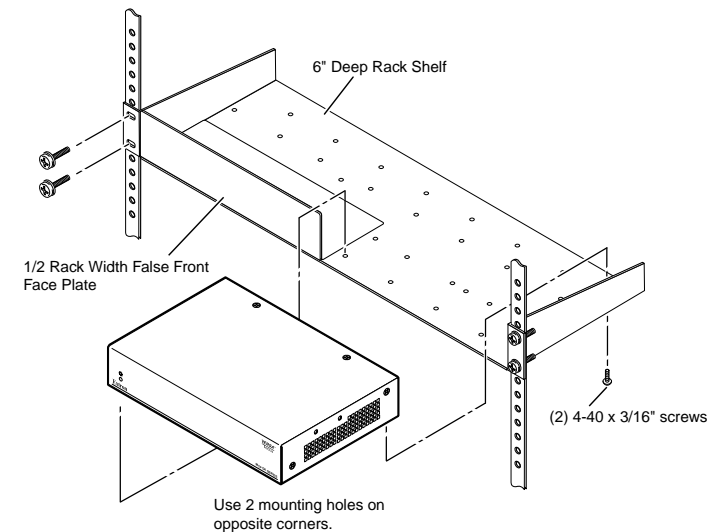


Figure 3 — Mounting on a 6" deep rack shelf

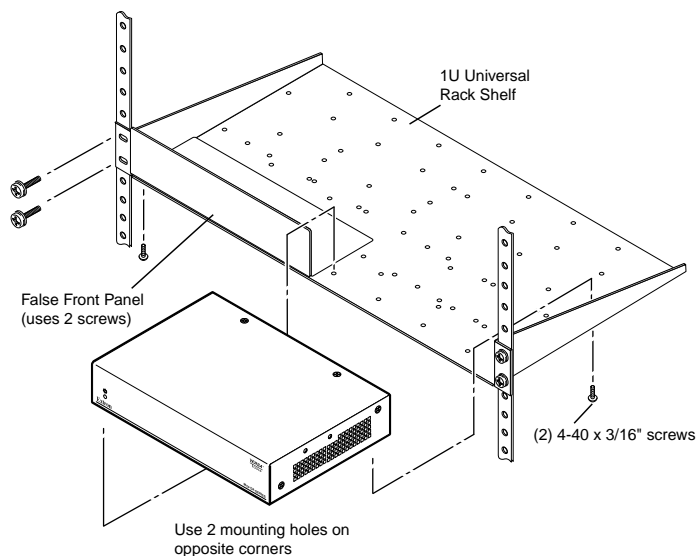


Figure 4 — Mounting on a 1U universal rack shelf

Furniture mounting

Do not attach the rubber feet. Furniture mount the DA using the optional mounting kit (part #70-077-01) as follows:

1. Remove rubber feet if they were previously installed on the bottom of the DA.
2. Attach the furniture mounting brackets to the DA with the provided machine screws (figure 5).

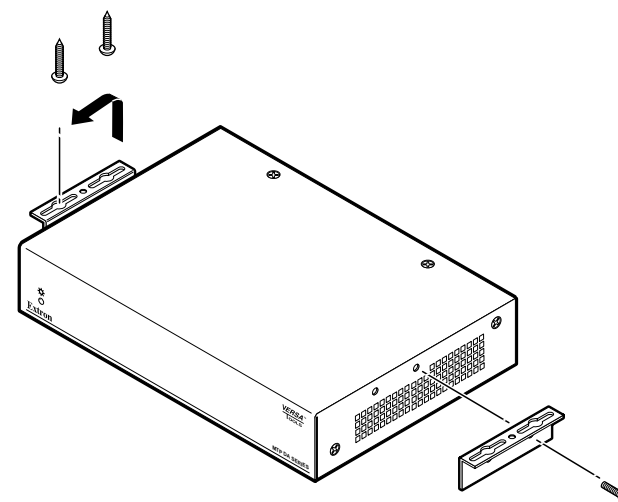


Figure 5 — Attaching the furniture mounting brackets to an MTP DA

3. Hold the DA with the attached brackets against the underside of the table or other furniture. Mark the location of the screw holes of the bracket on the mounting surface.
4. Drill 3/32" (2 mm) diameter pilot holes, 1/4" (6.3 mm) deep in the mounting surface at the marked screw locations.
5. Insert #8 wood screws into the four pilot holes. Tighten each screw into the mounting surface until just less than 1/4" of the screw protrudes.
6. Align the mounting screws with the slots in the brackets and place the DA against the surface, with the screws through the bracket slots.
7. Slide the DA slightly forward or back, then tighten all four screws to secure the unit in place.

Connections

CAUTION

Do not connect these devices to a computer data or telecommunications network.

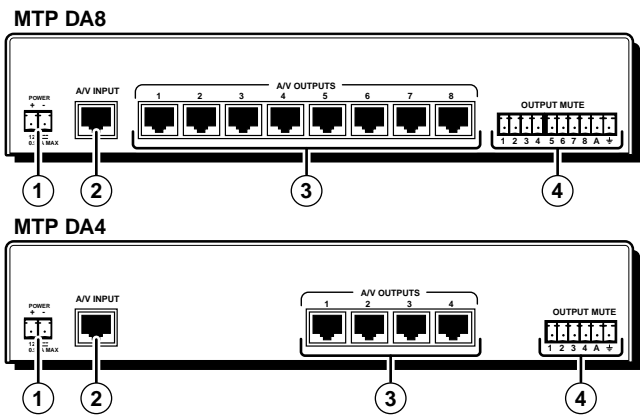


Figure 6 — DA rear panel features

- ① **Power connector** — Plug the included external 12 VDC power supply into this 2-pole captive screw connector. See "Power supply wiring", on page 12, to wire the connector.
- ② **A/V Input connector** — Connect one end of the cable carrying the video and audio or serial TP link from the transmitting device, to this RJ-45 female connector.
- ③ **A/V Output connector** — Connect one end of up to four or eight TP cables to these RJ-45 female connectors.

Connect the free ends of the same cables, carrying the distributed video and audio or serial TP link, to the RJ-45 connectors on the receivers.

See "TP cable termination", on page 13, to wire the RJ-45 connectors.

NOTE

The MTP DA's output does not provide any pre-peaking control. The total recommended distance for a complex system with multiple DA outputs is the same as for a simple system with a single transmitter and receiver.

NOTE

See the recommended transmission ranges in the table on page 3. The table's recommendations apply to a complete transmission system, which can include a single transmitter, DA, and multiple receivers or a complex system including multiple daisy-chained receivers.

- ④ **Output Mute connections** — The Output Mute connector provides a way to mute (blank) any or all TP outputs. Each numbered pin of the captive screw connector is assigned to one of the DA's outputs (pin A is assigned to all DA outputs) (figure 7). When you short and latch a numbered pin or pins to ground, the DA mutes the associated output(s).

MTP DA8 Output Mute Connector		Pin	Contact closure	Function
		1	Out #1	Mute output #1
		2	Out #2	Mute output #2
		3	Out #3	Mute output #3
		4	Out #4	Mute output #4
		5	Out #5	Mute output #5
		6	Out #6	Mute output #6
		7	Out #7	Mute output #7
		8	Out #8	Mute output #8
MTP DA4 Output Mute Connector		A	Out All	Mute all outputs
		≡	Gnd	Ground

Figure 7 — Mute connector and pinout

Power supply wiring

Figure 8 shows how to wire the power connector.

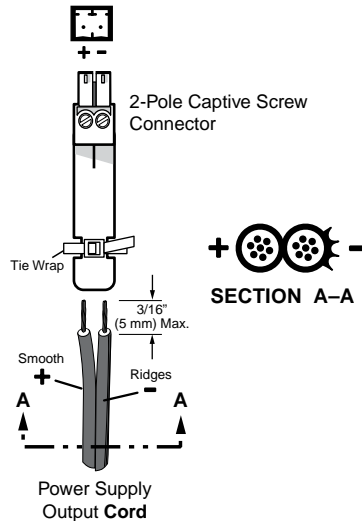


Figure 8 — Power connector wiring

CAUTION Power supply voltage polarity is critical. Incorrect voltage polarity can damage the power supply and the unit. The ridges on the side of the cord (figure 8) identify the power cord negative lead.

To verify the polarity before connection, plug in the power supply with no load and check the output with a voltmeter.

WARNING The two power cord wires must be kept separate while the power supply is plugged in. Remove power before wiring.

CAUTION The length of the exposed (stripped) copper wires is important. The ideal length is 3/16" (5 mm). Longer bare wires can short together. Shorter wires are not as secure in the connectors and could be pulled out.

NOTE Do not tin the power supply leads before installing them in the direct insertion connector. Tinned wires are not as secure in the connectors and could be pulled out.

Use the supplied tie-wrap to strap the power cord to the extended tail of the connector.

Alternatively, an optional Extron PS 123 Universal 12 VDC Power Supply, part #60-814-01, can power multiple Extron 12 VDC devices using only one AC power connector.

TP cable termination

NOTE RJ-45 termination with CAT 5, CAT 5e, or CAT 6 cable must comply with the TIA/EIA T 568A or TIA/EIA T 568B wiring standards for all connections. RJ-45 termination with Skew-Free A/V UTP cable must comply with TIA/EIA T 568 A only.

Figure 9 on the next page details the termination of TP cables with RJ-45 connectors in accordance with the TIA/EIA T 568A or TIA/EIA T 568B wiring standards. Use either standard with CAT 5/5e/6 cable, but use the **same** standard on both ends of the cable.

Note the separate columns for input from a low resolution (composite video or S-video) and high resolution (RGB video) MTP. Note also the shaded table that identifies the unconventional signal assignment when a low resolution MTP unit is jumpered for stereo audio.

NOTE Enhanced Skew-free A/V cable is **not recommended** for Ethernet/LAN applications.

This cable is specially designed for compatibility with Extron's Twisted Pair products, wired using the TIA/EIA 568 A standard.

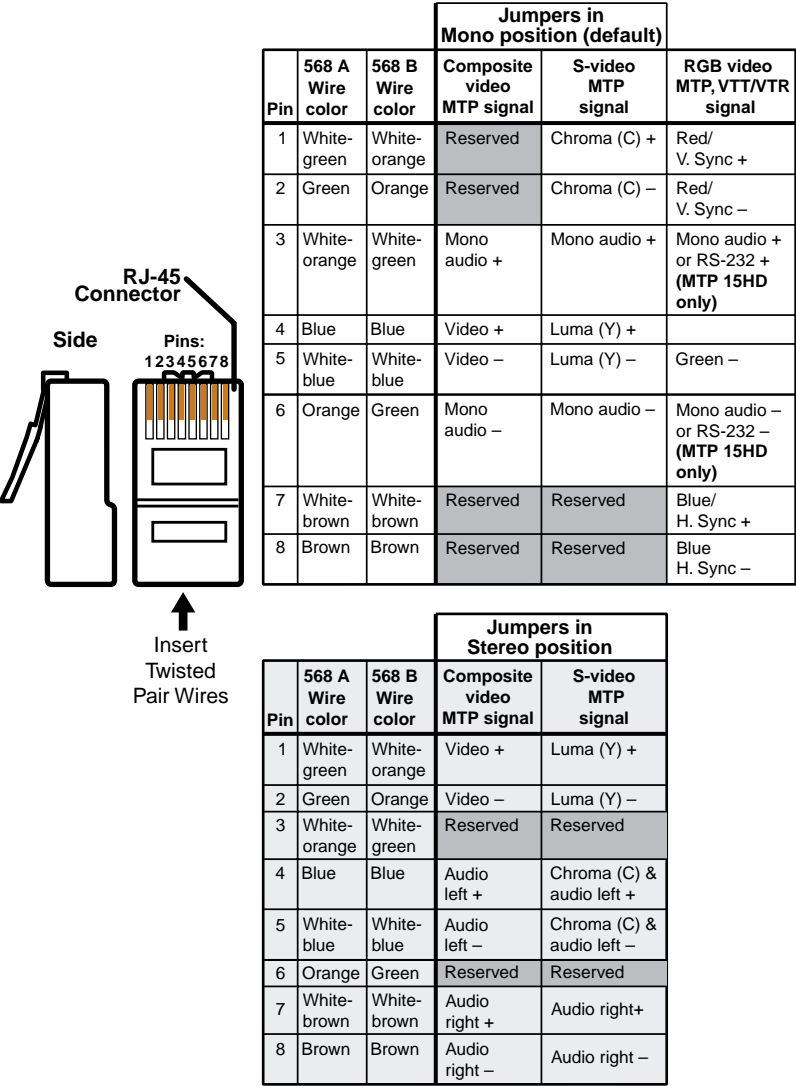
The green, brown, and blue pairs of this cable have virtually identical lengths and should be used to transmit the RGB, composite video, or S-video signals.

The orange pair of this cable has a different length and **should not** be used to transmit the RGB, composite video, or S-video signals.

NOTE If you are using the DA as part of an MTP 15HD RS (serial data) transmission system, be aware that the DA routes the serial link one way only, from the transmitter to the receiver(s).

Also, the transmitter and receiver must be jumper configured to pass the serial link one way only. Refer to the MTP 15HD RS User's Manual.

NOTE When the TP input is from a low resolution unit (MTP SV, MTP CV, or MTP AV), the signal assignment depends on the position of signal jumpers in the transmitter and receiver. Refer to the MTP Series Users' Guide.



NOTE If you are using Enhanced Skew-Free™ A/V cable, use the TIA/EIA T 568A standard only.

Figure 9 — TP cable termination

Front Panel Power Indicator

Figure 10 identifies the front panel power LED.



Figure 10 — MTP receiver front panels

- ① Power LED — Indicates power is applied to the MTP DA.

Skew Delay Problems

CAT 5 TP cable can lead to registration errors between the red, green, and blue video signals. Pair skew can be measured with test equipment or identified by viewing a crosshatch test pattern with a critical eye to determine if either the red, green, or blue video image leads (appears to the left of) the other two video images. These images can be minimized or eliminated by one of the following methods:

- Using a skew delay adjusting receiver: (MTP RL 15HD A SEQ or MTP RL 15HD RS SEQ)
- Switching to Extron's Enhanced Skew-Free A/V UTP cable
- Adding a skew compensation cable equal to the length of pair skew to the receiver's video output
- Installing an SEQ 100 15HD Skew Equalizer on the receiver's video output and adjusting the skew for the leading video image

Reference Information

Specifications

Video

Gain Unity

Video input— see transmitters' specifications

Number/signal type..... 1 set of proprietary analog signals
Connectors 1 female RJ-45

Video output— see receivers' specifications

Number/signal type
MTP DA4..... 4 sets of proprietary analog signals
MTP DA8..... 8 sets of proprietary analog signals
Connectors
MTP DA4..... 4 female RJ-45
MTP DA8..... 8 female RJ-45
Maximum resolution 1920x1200

NOTE Refer to the user's manual for the maximum distances recommended for specific resolutions.

Audio

Gain Unity (0 dB)

Audio input— see transmitters' specifications

Number/signal type..... 1 set of proprietary analog signals
Connectors 1 female RJ-45

Audio output— see receivers' specifications

Number/signal type
MTP DA4..... 4 sets of proprietary analog signals
MTP DA8..... 8 sets of proprietary analog signals
Connectors
MTP DA4..... 4 female RJ-45
MTP DA8..... 8 female RJ-45

Control/remote— distribution amplifier

Contact closure (latching)
MTP DA4..... (1) 3.5 mm captive screw connector, 6 pole for contact closure output mute control
MTP DA8..... (1) 3.5 mm captive screw connector, 10 pole for contact closure output mute control

Contact closure pin configurations
MTP DA4..... 1 = mute output 1, 2 = mute output 2, 3 = mute output 3, 4 = mute output 4, 5 = mute all outputs, 6 = GND
MTP DA8..... 1 = mute output 1, 2 = mute output 2, 3 = mute output 3, 4 = mute output 4, 5 = mute output 5, 6 = mute output 6, 7 = mute output 7, 8 = mute output 8, 9 = mute all outputs, 10 = GND

General

Recommended cable type..... Enhanced Skew-Free™ A/V UTP Cable or CAT 5/5E/6 (shielded or unshielded)
External power supply 100 VAC to 240 VAC, 50/60 Hz, external
MTP DA4..... 12 VDC, 2 A, regulated
MTP DA8..... 12 VDC, 3 A, regulated
Power input requirements 12 VDC, 0.93 A
Temperature/humidity Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing
Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling Convection, no vents
Mounting
Rack mount Yes, with optional 1U, 9.5" deep rack shelf, part #60-190-01 (RSU 129) or 60-604-01 (RSB 129) or 1U, 6" deep rack shelf, part #60-190-10 (RSU 126) or 60-604-10 (RSB 126).
Furniture mount..... Yes, with optional Under-Desk Mounting Kit #70-077-01 (MBU 125)
Pole mount Yes, with optional Projector Mounting Kit #70-077-04 (PMK 200)
Enclosure type Metal
Enclosure dimensions..... 1.75" H x 8.75" W x 6" D (1U high, half rack wide) (4.4 cm H x 22.2 cm W x 15.2 cm D) (Depth excludes connectors.)

Reference Information, cont'd

Product weight	1.2 lbs (0.5 kg)
Shipping weight	4 lbs (2 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Regulatory compliance	
Safety	CE, CUL, UL
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE All nominal levels are at $\pm 10\%$.

NOTE Specifications are subject to change without notice.

Part Numbers

MTP DA distribution amplifiers

DA	Part number
MTP DA4	60-685-01
MTP DA8	60-686-01

Included parts

These items are included in each order for an MTP SW6:

DA	Part number
12 VDC power supply	
MTP DA4	28-071-01
MTP DA8	28-113-01
MTP DA Series User's Guide	
IEC power cord	
Rubber feet	
Tweaker	

Accessories

Accessory	Part number
RSU 129 1U universal rack shelf	60-190-01
RSB 129 1U basic rack shelf	60-604-01
RSU 126 6" deep universal rack shelf	60-190-10
RSB 126 6" deep basic rack shelf	60-604-10
MBU 125 under-desk mounting kit	70-077-01
PMK 200 pole mount kit	70-077-04

Cables

NOTE Enhanced Skew-Free™ A/V UTP cables are not recommended for Ethernet/LAN applications.

Enhanced Skew-Free™ A/V cable	Part number
Enhanced Skew-Free A/V cable (cut, various lengths)	26-569-xx
Enhanced Skew-Free A/V 1000' (Bulk) (non-plenum)	22-141-03
Plenum enhanced Skew-Free A/V 1000' (Bulk)	22-142-03

Connectors

Connector	Part number
CAT 6 jack (black), qty. 10	100-476-01
CAT 6 jack (red), qty. 10	100-477-01
CAT 6 jack (blue), qty. 10	100-478-01
CAT 6 jack (orange), qty. 10	100-479-01
CAT 6 jack (gray), qty. 10	100-480-01
CAT 6 jack (white), qty. 10	100-481-01
CAT 6 jack (ivory), qty. 10	100-482-01